TW-1 Stan Notes / FTI Supplement
BI/RI/AN/IR Stages
REV: JULY 2010

1. OVERVIEW

This TW-1 document is provided as an Instrument supplement only where procedures or amplification are not included to sufficient depth in the Flight Training Instruction (FTI).

2. ADMIN

a. The Brief

(1) The first BI aircraft flight requires a two-hour brief. Since this is the first hop in the aircraft for the SNA, the IP shall ensure that every aspect of the flight and all graded items are briefed, to include installation of the instrument hood, as well as Maintenance Control procedures. Course rules should also be reviewed. For night flights, brief appropriate cockpit lighting configuration. Comm should be briefed in detail to include amplifier control panel manipulation. The SNA is responsible for all communications with ATC outside of the MOA. MOA discreet comm will remain the responsibility of the IP. Stalls will only be conducted during daylight flights. The SNA shall advise the IP of any manipulation of the system ("LAW set 5000"," tacan reset to 117X", "up on one, down on two", "Bingo reset to 1.2").

(2) For locally flown RI, AN, or IR flights, SNA's shall call their scheduled IP NLT 2100 the night prior to discuss their route plan for the flight. IP's will strive to ensure that SNA's see a multitude of different local flight routes during their training flights, and do not fly the same route more than once if possible. SNA's shall prioritize using JUMPS as the primary means of fuel planning. Manual jet logs will be a valid substitute if JUMPS facilities are unavailable. Students shall be responsible for maintaining "simulator junk jackets", which shall include logged simulator practice time, and a copy of all simulator grade sheets. A "junk jacket" may be obtained from Candy Murren in Wing Stucon. Junk jackets shall be available for simulator instructor review upon request. Blank Simulator practice sheets may be obtained from the Sim building front desk. Students are only responsible to fill junk jackets with grade sheets and practice time documentation from the publication date of this Instrument Stan Note and forward (i.e. Students shall not go back into their records to print out grade sheets prior to July 2010). The junk jacket will be used for all stages of student simulator events. The use of Simulator Junk Jackets in not optional.

(3) For cross-country or out & in briefs, the SNA shall ensure a weather brief has been requested through the Navy Flight Weather Briefer (https://fwb.metoc.navy.mil/fwb121/) and have a completed DD-175 ready for approval by the IP. IP's are responsible to ensure NOTAMS and TFR's have been checked. On cross country flights other legal means of filing flight plans may be used such as calling 1800WXBRIEF. UHF frequencies shall be utilized to the maximum extent possible when talking to long range ATC facilities (i.e. Center frequencies).

(4) For aircraft events, SNA's are expected to have a briefing space prepared with E-brief, BASH, NOTAMS, ADDS Weather, and TFR's called up on the computer. Kneeboard cards for respective flights will be printed from E-brief. Applicable flight information such as the Questions of the Day shall be posted on the white board. For Simulator events, the white board information may be written on the reverse side of a printed event grade sheet. Students should arrive for simulator events 20 minutes prior to the scheduled brief. Due to a lack of briefing/debriefing spaces in the Sim building, Students shall not acquire a briefing space, or log onto a computer until 15 minutes prior to brief time. Students are required to wear a torso harness for simulator events CO-7S and EP's 1-4S.

b. Walk.

(1) For early instrument hops allow 45 minutes to walk. If the aircraft is not yet assigned, have SNA gear up, and meet in Maintenance Control NLT 30 min prior to takeoff. SNA's may be checking out rented gear and may be wearing it for the first time – look them over to ensure they are wearing the gear correctly. Ensure the SNA checks out an instrument hood. The use of Communication Ear Plugs (CEP) is highly recommended for all aircrew.

c. Pre-Flight.

(1) The SNA is not responsible for aircraft pre-flight on BI's and RI's. It is recommended the SNA strap into the rear cockpit while the IP conducts the pre-flight during AN's and IR's. During BI's, IP's shall ensure the SNA is properly strapped into the aircraft. The SNA is responsible for loading a tape for the flight. It is highly recommended that the SNA practice strapping in, and tape loading before their first flight. An aircraft for use in practice strapping-in shall be requested by the SNA directly with Maintenance Control. The SNA shall have their mask fitted with a PR before flying to ensure the microphone is properly adjusted.

d. Clearance.

(1) For local events, the clearance call will be, "Clearance, [Carp/Shad 1XX], single, on request." For cross countries, the call shall be, "Clearance, [Talon/Bobcat XX], single, IFR [Destination] on request." The SNA shall read back the clearance verbatim. Never accept or acknowledge a clearance which is audibly unclear or not fully understood. When in doubt, always query ATC to clarify clearance instructions.

3. FLIGHT CONDUCT

a. Start and Checks.

(1) Post Start, the IP will transfer control of both radios to the rear cockpit by selecting "AFT" on the comm transfer buttons. The SNA will call for clearance and get ATIS. It is optional to complete these items before start to save fuel. When the MFD's come on line, the IP will transfer NAV control to the rear cockpit by selecting "AFT" on the HSI. The SNA shall then proceed to input data into the system as required. The SNA will check TACAN operation and quality of the GINA alignment by correlating TCN 56X with WYPT 19L (HYBD boxed).

The two navigation symbols should overlap each other in ten-mile scale. The NAV system shall be set up to provide the maximum amount of SA possible for the departure procedure. A course line through the departure runway does not amplify departure SA, and is not commensurate with the immediate SA required during departure procedures in Class C and B airspace. The instrument hood shall be used during day VMC conditions and may be attached anytime after the canopy is closed, or as briefed by the IP. During BI's the instrument checklist should be completed in Marshal. Takeoff checks shall be completed following an "Instrument Checklist complete" call from the SNA. If briefed, the SNA will call the aircraft out of chocks with base ("Base, 1XX out of chocks").

b. Marshal.

(1) Before leaving marshal, make sure the following are complete: receipt of Clearance & ATIS, Nav system setup, Instrument Checklist, Takeoff Checklist, and instrument hood installation. TACAN navigation shall be the primary means of navigation when not in the MOA. During BI's, the waypoint sequence for the specified area and the 19L waypoint should be used for MOA navigation and de-confliction. Use of waypoints is encouraged in RI's and AN's and should be briefed thoroughly. Aircrew are advised that manual entry of waypoints without entry of appropriate Mag Var may induce deviations which are unacceptable to ATC. The appropriate navigational aid should be "boxed." The IP will clear the SNA to call for taxi. The call for taxi will be, "Ground, [Callsign], single, taxi with (ATIS letter)." Check instruments for proper movement during taxi. The IP will inform the SNA when to switch Tower (btn 3 or 12, as assigned) and call, "Tower, [Callsign] takeoff."

c. Takeoff.

(1) With clearance for takeoff, the IP will ensure the groove is clear and report the prevailing wind. Crossing the hold short for take off, the IP shall verbalize the initial portion of the clearance over the ICS using a "Heading and Altitude" (HA) format. Both aircrew will select hot mike after being cleared for T/O. The IP will conduct the takeoff and report, "Clean below 200, handle checked, going cold in the front." The SNA will reply, "Going cold in the back." The IP will trim the aircraft and initiate a three way change of controls by announcing, "You have the controls." The SNA will reply, "I have the controls," and the IP will complete the exchange with, "Roger, you have the controls."

d. Departure.

(1) For BI flights the SNA shall fly the entire SID to the appropriate working area. The SNA will intercept 250 kts and make a departure call, "Departure, [Callsign] airborne, passing X, X00 for X, X00, request full SID." The reply should be "[Callsign] radar contact…" The heading bug shall be used as an altitude bug during all climb outs and descents. (200 ft = 002; 2000 ft = 020; 20,000 ft = 200; > FL 360 = 037, 041, etc.) While on an instrument approach, the heading bug may be used as desired to assist with heading assignments, lead radials, or as desired. The pilot at the controls shall make a "Thousand to go" call when approaching the assigned altitude and concurrently adjust rate of climb or descent to a maximum of 1,000 fpm to affect a smooth level-off. Acknowledgement is required by the pilot not at the controls ("Thousand to go"). Once

directed to discrete frequency for the MOA, the IP will assume the comm, and be responsible for check-in, de-confliction, "loud and clear," and checkout calls with other traffic in the area.

e. Area Management.

(1) The IP is responsible for area management, as well as fuel management to complete the required approaches. An appropriate Joker and Bingo fuel setting shall be thoroughly briefed.

f. Syllabus Maneuvers.

(1) The student is responsible for asking questions in the brief to clear up confusion concerning any maneuver. Trim is a fundamental part of basic air work success. "Click" the trim as required in increments. "Clicking" will give you a baseline of how much trim you have set. "Running" the trim does not give a baseline from which to work.

(a) Stall Series. Each stall series maneuver should optimally be started with zero VSI, but do not waste gas waiting for a perfectly zeroed VSI. With VSI tending towards zero, start the maneuver. Stalls may not be conducted at night or IMC conditions.

(b) S-3 Pattern. Aircraft flight characteristics in the S-3 patterns are fairly close to profiles flown in the simulator. One notable exception is momentum. It takes a little more effort in the airplane to change from a descent to a climb and vice versa. Ensure a good time hack with the IP prior to beginning the maneuver.

(c) Unusual Attitudes / Partial Panel. Set the brightness/contrast on the ADI to provide a clear delineation between "nose hi attitude" and "nose low attitude." With poor settings, it is possible to have the nose-hi and nose-low regions look the same. When conducting Unusual Attitude training, be aware of MOA altitude restrictions.

g. Area Checkout.

(1) Checkout shall be accomplished per the course rules for each specific area. Flights will typically coordinate with Memphis or Atlanta Center for transit to DSOTO at 16K for the HI VOR/DME B at MEI. The HI TACAN 19L / 01L approaches to NMM may be flown in the simulator or during actual IMC conditions, but are usually avoided during VMC conditions, as they are generally difficult to coordinate/deconflict with aircraft in Area 1.

h. Approaches.

(1) When switched to Meridian Approach, the SNA shall call, "Meridian Approach, [Callsign], 16K, with [ATIS], request." The request should then relay your full intentions, (i.e., "Request the HI VOR/DME B, followed by the ILS at Key, followed by the GCA box at Navy McCain." Give them your entire request right away. Don't make them ask for it piece by piece. The controller will pass your request along to the next controller. When descending through platform (5,000 ft AGL), the "minute-to-live" rule shall be applied. The pilot at the controls shall inform the other occupant verbally upon reaching "platform." The intermediate RADALT

setting will be set to 1,000 ft. Instrument approach procedures & radar minimums provide 1,000 ft of terrain clearance until inside the final approach fix (FAF), PAR glide path intercept point, or ASR let down point. A realistic intermediate RADALT setting which will apply to all instrument approach circumstances over any terrain is 1,000 ft until the aircraft is configured for landing. Final LAW setting should be set at Height Above Touchdown (HAT) for a precision approach, or approximately 10% below the HAT at MDA on a straight-in non-precision approach (Height Above Airport –HAA for circling approaches). Utilize HAT (i.e., AGL) vice MDA (MSL) to prevent the LAW from constantly going off due to terrain. The LAW should be adjusted to HAT / HAA setting prior to FAF or glideslope intercept. Ensure TCN and WYPT are not boxed while on the FAC of an ILS approach. On ILS approaches, aircrew are required to "start the clock" at the FAF. Should the Glide Slope fail inside the FAF, timing will be used in conjunction with localizer mins to complete the approach. Recommended radio management is to use the front radio for primary ATC communication (except tower) while using the back radio for ATIS, tower and base. The last approach at NMM may be to a full stop, missed approach (with vectors to the overhead), or a turn to downwind. Expect all practice approaches to be conducted at half flaps. The final approach with intent to land shall be conducted at full flaps unless fuel or other considerations cause the IP to direct an alternate configuration. If the student is flying a ½ flap approach from the front seat, the student shall request "flaps full" from the IP if reconfiguration of the aircraft is desired. Unless ATC advises the VFR pattern is empty at NMM, approaches to the right runway shall be conduced to avoid interrupting the VFR landing pattern on the left runway.

i. Missed Approaches.

(1) Missed approach procedures will normally be Runway Heading, climb to 2,000 ft on runways 19L, 1L, and 28. On runway 19R, normal MAP is a right turn hdg 210, climb to 2,000 ft. On runway 1R, normal MAP is a right turn hdg 030, climb to 2,000 ft. During BI's, the landing gear will remain down on the missed approach until rolling out on the new heading. Gear and flaps will then be raised out of the turn. In subsequent instrument stages, it is optional to raise the gear in a turn. It is important to note that while landing gear may be raised in a turn, flaps may only be raised while wings level. A planametric course line through the approach runway will be used post missed approach when executing multiple approaches. At the DA/MAP on a full stop approach, or upon completion of the final missed approach procedure, the IP will take control of the aircraft by initiating 3-way positive change of aircraft control. The SNA may then remove his/her instrument hood and secure all loose items in preparation for landing. A missed approach should be executed based on a LAW alert under the following circumstances:

(a) On a precision approach – Missed approach executed while on the final approach course and the barometric DA has been reached, the LAW tone is activated at HAT, directed by the controller, or full scale needle deflection (localizer or glideslope, whichever occurs first).

(b) On a non-precision approach – Missed Approach executed while on the final approach course and the MAP point has been reached, LAW tone is activated, directed by the controller, or full scale localizer needle deflection. Variations in terrain can be a factor when shooting the HI VOR/DME B approach at KEY Field – it is recommended that the LAW be set at 500 ft for this specific approach.

j. Post Landing.

(1) Once clear of the runway, the IP will call "Ready to safe in the front" the SNA will reply "Safe in the back" (if ready). The IP will safe his seat and report "Safe in the front." The SNA will call Ground, "Ground, [Callsign], clear of the active, taxi to the line." The SNA will then check the BIT page and report the aircraft status to Maintenance, and "Safe on Deck" to Eagle/Tiger base. The IP is responsible for taxiing and parking the aircraft. However, on cross-countries the SNA should back up the IP with the airport diagram at unfamiliar airfields. The IP will advise the SNA when "Cleared to un-strap." The SNA is encouraged to load the Nav/Wypt data for the subsequent flight (if on a cross-country) during the taxi to parking. The SNA will secure all rear cockpit equipment; ensure he is clear of the canopy, and report, "All my equipment is off, I'm clear of the canopy." The IP will conduct standard shutdown procedures, and will not open the canopy until the RPM is 20% or below. The IP is responsible for the post-flight inspection. The SNA will return the instrument hood to Maintenance Control, and wait for their instructor in the student Ready Room for debrief.

4. ATC LOCAL INSTRUMENT INFORMATION

a. Meridian Approach Control.

(1) The controllers from Meridian Approach are located inside the Radar Room at the base of the tower at NAS Meridian. The maximum range of Meridian Approach's airspace is 45-60 statute miles. Below the MER1W MOA, Meridian Approach owns altitudes 7,000 ft and below. All other sectors of Meridian Approach airspace extend from 12,000 ft and below. All local practice instrument approaches should utilize either the departure runway, the ASR at Bravo Field, or Key Field. The landing runway at NMM should not be utilized due to sequencing difficulties with pattern aircraft.

b. Airspeed

(1) ATC Radar speed resolution is ten knots. Therefore, an indicated airspeed of 244 knots would indicate 240 knots on ATC radar; 246 knots would indicate 250 knots, etc.

(2) There is no letter of agreement between CTW-1, Meridian Approach, or the FAA that allows transit to and from the MOA's below 10,000 ft at airspeeds greater than 250 kts. Aircrew are forewarned that an aviator may be held accountable if an incident occurs (such as a TCAS alert with another aircraft), which is attributable to speed in excess of 250 knots below 10,000 ft.

c. GCA Approaches to Tower Downwind

(1) GCA's to downwind are required when the ceiling and visibility at Navy McCain are below 1,900 ft MSL and 3 statute miles visibility. This 1900 MSL/3 SM requirement is due to the standard Class D airspace VFR weather minima of 3-statue miles visibility, with a required vertical distance below clouds of 500 ft. In order to maintain 500 ft below the clouds inbound for the overhead break of 1,400 MSL, the cloud deck cannot go any lower than 1,900 MSL (1,900 MSL cloud deck – 1,400 MSL overhead break = 500 ft vertical clearance from clouds).

(2) If the weather falls below 1900 MSL/3 SM, Meridian Approach is unable to vector aircraft to the overhead break (ATC is unable to use the "Carrier Break" to attain lower vectoring minimums). GCA's to downwind will be used (if the pattern is open) for those desiring to conduct pattern work vice full stop off of the GCA.

(3) With the weather below 1900 MSL/3 SM, aircrew may "Request a 200 KT GCA to downwind." IFR separation criteria apply. Approach controllers must maintain three miles separation between all aircraft until they are under tower control. Therefore, ATC should be advised of airspeeds above 200 kts while on the approach.

d. ASR Approaches

(1) ASR approaches at Navy McCain utilize the main radar dish located near the back gate. The best-case radar capability for an ASR approach will bring an aircraft up to 500 ft either left or right of centerline.

(2) At 6.5 statute miles from the field, expect a "Prepare to descend in one mile" call. On an ASR approach, this call is advisory in nature, informing the pilot that he is close to the point where glide slope intercept would occur if on a precision approach.

(3) At 5.5 statute miles, expect clearance to descend to an intermediate altitude of 900 or 1000 ft MSL at NMM. "Descend and Maintain One-Thousand (RWY 1L/1R)"/ "Descend and Maintain Niner-Hundred (RWY19R/28)."

(4) At 5.0 statute miles, expect: "Five miles from runway, altitude should be 1,800"

(5) At 4.0 statute miles, expect: "Four miles from runway, altitude should be 1,500"

(6) At 3.0 statute miles, expect: "Three miles from runway, altitude should be 1,200"

(7) At 2.0 statute miles, expect: "Two miles from runway, altitude should be (900/1,000), descend to your Minimum Descent Altitude."

(8) Per the CNATRA Instrument FTI, while on an ASR approach, aircrew working to be "slightly lower" than the recommended altitude is acceptable, and applicable to most airfields with ASR approaches. However, due to known radar limitations and geography at Navy McCain, the preferred ASR approach procedure (at NMM), is to be no lower than the recommended altitudes while on an ASR approach. All altitudes (excluding recommended altitudes) assigned by the ASR controller must be read back.

(9) When "No Gyro" vectors are requested, approach will normally provide them on GCA final to avoid controller saturation. For additional student training (and ATC proficiency), it is recommended to request "No Gyro vectors in the pattern" as well.

(10) An ASR is available for use at Joe Williams field runway 31. Circling mins are available for runway 13. The minimums are printed in the Volume 14 Low Alt Plate, under Radar Instrument Approach Minimums, Joe Williams NOLF (KNJW).

e. Precision Approaches.

(1) Precision approaches at Navy McCain utilize standard FAA glide slope and azimuth radar equipment. The antennas are located at the runway in use. The precision approach radar capability will bring an aircraft up to 30 ft left or right of centerline.

5. ADDITIONAL INFORMATION

a. Flight Plans/Direct Routing.

(1) The TD code for the T-45C is 'A' meaning the Aircraft Desig and TD Code block on a DD-175 should read "HAWK/A". Students are expected to prepare routes of flight utilizing NAVAID to NAVAID navigation, and jet routes in accordance with General Planning and OPNAV 3710.7U. Students should also use SID's and STAR's when appropriate. Once airborne, requests for direct routing are encouraged to maximize fuel available for training in the terminal area. IP's shall ensure that SNA's are backing up their TCN navigation with appropriate WYPT correlation along the route. ICS discussions below 10,000 ft shall be limited to those pertinent for flight instruction, and the professional, safe operation of the aircraft.

b. Icing.

(1) OPNAV 3710.7U states, "Flights shall be planned to circumvent areas of forecast atmospheric icing and thunderstorm conditions whenever practicable". If OAT is between -15° to +5°, be alert for possible icing if visible moisture is present. OAT is located on the engine page.

c. Cross-Countries.

(1) When flying cross-country into a cold environment, be aware that accumulator pressures may be lower than what you are accustomed to. Consult the pressure vs. temperature chart in the servicing chapter of the NATOPS manual. When traveling to civilian fields, ensure that the fuel you purchase contains PRIST (anti-icing additive). Fuel without PRIST is not authorized. Aircrew are responsible to be familiar with the TW-1 Cross-Country Instruction 3710.4A.

d. Crew Resource Management (CRM).

(1) Students are integral members of the flight crew. As such, the principles of good Crew Resource Management are always to be exercised. Students not at the controls are encouraged, and in fact expected to advise an IP at the controls if they detect imminent or actual deviation from an assigned clearance. Wingmen are similarly encouraged and expected to ensure all clearances are understood and advise lead of any imminent deviation.

Prepared By

V.M. Roman, Jr.
TW-1 Stan O

Approved By

Keith T. Taylor
Commodore, TW-1